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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,777

11/17/2003

George Borshukov

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

09/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/715,777	Applicant(s) BORSHUKOV ET AL.	
	Examiner ALEX LIEW	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☒ Claim(s) 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. This office action is in response to the RCE filed on 6/17/08.

2. Response to applicant's arguments:

The current amendments on independent claims 1, 16, 21 and 23, overcomes the rejections made by references, Wolfe ("Teaching Texture Mapping Visually") in view of Geng (US pub no 2003/0123713) and Arias (US pat no 5,966,134). In an updated search the examiner found Maurer (US pat no 6,272,231) in view of Lyon (US pat no 5,739,820) and Bolle (US pat no 5,546,475).

Maurer discloses a method for rendering an object, comprising: generating a first matrix of light intensity values representing diffuse reflection from color-neutral surface excluding representation of subsurface light scattering and specular reflection (see figure 17, 150, the morph #D mesh only includes grids which excludes any specular reflection and light scattering); blurring the matrix of light intensity values (see column 13, lines 43-47); generating values of an image of the object using the blurred matrix of light intensity values (see figure 17, rendered head); and storing in a memory pixel values of the image (see figure 3, element 30).

Maurer does not disclose combining specular surface colors of the object to provide a rendered image simulating subsurface scattering in a skin surface of the object. Lyon discloses combining specular surface colors of the object to provide a rendered image simulating subsurface scattering in a skin surface of the object (see figure 3, 310 and 312 are combined at 334). One skilled in the art would include combining specular surface colors of the object to provide a

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rendered image simulating subsurface scattering in a skin surface of the object because to extrapolated real world lighting into computer model enhancing details of the object.

Maurer and Lyon do not disclose a color map. Bolle discloses a color map (see figure 6, and column 14, lines 13-21). One skilled in the art would include a color map because to extract more details from the object image.

3. Allowable claims

Claims 1-20 are allowable.

With regards to claim 1, the examiner cannot find any suggestions and motivation disclosing generating, using a simple reflectance model, a two-dimensional light intensity matrix representing diffuse reflection from a modeled color-neutral surface of the digital object in the modeled light environment exclusive of sub-surface scattering effects, each matrix entry being a lumel representing a *modeled light intensity correlated to a mapped unique surface element* of the digital object in combination with the rest of the limitations of claim 1.

With regards to claim 16, see the rationale for claim 1.

DETAILED ACTION

Claim Rejections - 35 USC § 103

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer '231 in view of Lyon '820 and Bolle '475.

With regards to claim 21, Maurer discloses a method for rendering an object, comprising: generating a first matrix of light intensity values representing diffuse reflection from color-neutral surface excluding representation of subsurface light scattering and specular reflection (see figure 17, 150, the morph #D mesh only includes grids which excludes any specular reflection and light scattering); blurring the matrix of light intensity values (see column 13, lines 43-47); generating values of an image of the object using the blurred matrix of light intensity values (see figure 17, rendered head); and storing in a memory pixel values of the image (see figure 3, element 30). Maurer does not disclose combining specular surface colors of the object to provide a rendered image simulating subsurface scattering in a skin surface of the object. Lyon discloses combining specular surface colors of the object to provide a rendered image simulating subsurface scattering in a skin surface of the object (see figure 3, 310 and 312 are combined at 334). One skilled in the art would include combining specular surface colors of the object to provide a rendered image simulating

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subsurface scattering in a skin surface of the object because to extrapolated real world lighting into computer model enhancing details of the object.

Maurer and Lyon do not disclose a color map. Bolle discloses a color map (see figure 6, and column 14, lines 13-21). One skilled in the art would include a color map because to extract more details from the object image.

With regards to claim 22, Lyon further discloses generating a second matrix of values representing specular surface reflection from the object (see figure 3, vector path at 330). Bolle discloses color map. See motivation for claim 21.

With regards to claim 23, see the rationale for claim 21.

With regards to claim 24, see the rationale for claim 22. In addition, computed values of Lyon are stored in the ram of figure 1.

With regards to claim 25, Maurer discloses progressing unit is programmed with instructions for generating the blurred two-dimensional matrix of light intensity values from an unblurred two dimensional matrix of light intensity values (column 13, lines 43-48, images are unblurred before blurring).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX LIEW whose telephone number is (571)272-8623 or cell (917)763-1192. The examiner can be reached anytime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art
Unit 2624

Alex Liew
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8/30/08